

Express Mail No. EV323351697US Sheet 1 of 9 15437-0614 1/9 106B DIRECTORY DIRECTORY TARGET SEGMENT TARGET SEGMENT 120 210B NODE B 220A SOURCE SEGMENT 2 FOR NODE B NODE A 110 210A NETWORK

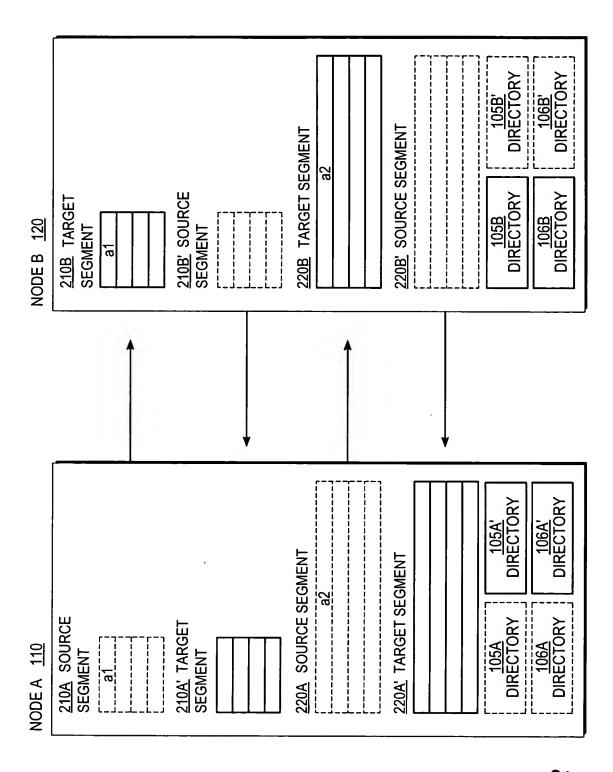
Title: Transfer Of Arbitrary Size Messages Over Memory Based

Interconnects

Inventor(s): Prashant Ramarao, et al.
Date: March 25, 2004 E
Docket No.: 15437-0614 S Express Mail No. EV323351697US Sheet 2 of 9

15437-0614

2/9



Title: Transfer Of Arbitrary Size Messages Over Memory Based Interconnects Inventor(s): Prashant Ramarao, et al. Date: March 25, 2004 Express Mail No. EV323351697US Docket No:. 15437-0614 Sheet 3 of 9 3/9 Form a first segment group comprising a pairing between a first source segment in a memory space of a sending machine and a first target segment in a memory space of a receiving machine and having a first partition size. 302 Form a second segment group comprising a pairing between a second source segment in a memory space of the sending machine and a second target segment in a memory space of the receiving machine and having a second partition size. 304 Receive in the sending machine, a message to be sent. 306 Select a segment group for transferring the message from the first segment group and the second segment group, the selected segment group having a partition size smaller than a length of the message. 308 Copy the message into the plurality of contiguous partitions of the source segment of the selected segment group. <u>310</u>

15437-0614

Send the content of the plurality of contiguous partitions of the source segment to the receiving machine as a single message.

312

Return

Fig. 3A

Transfer Of Arbitrary Size Messages Over Memory Based Title:

Interconnects

Inventor(s): Prashant Ramarao, et al.

Express Mail No. EV323351697US Date: March 25, 2004

Sheet 4 of 9 Docket No: 15437-0614

15437-0614

4/9

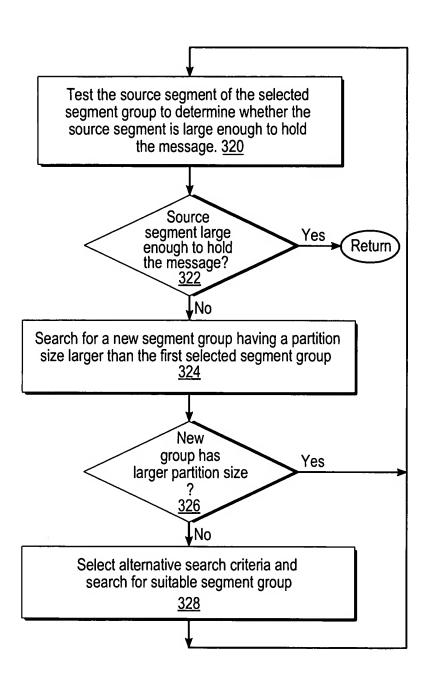


Fig. 3B

Title: Transfer Of Arbitrary Size Messages Over Memory Based

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Date: March 25, 2004 Express Mail No. EV323351697US

Sheet 5 of 9 Docket No: 15437-0614

15437-0614

5/9

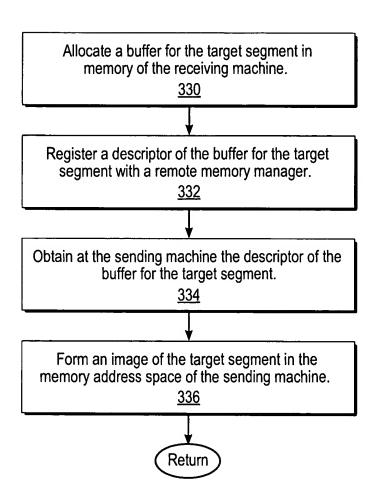
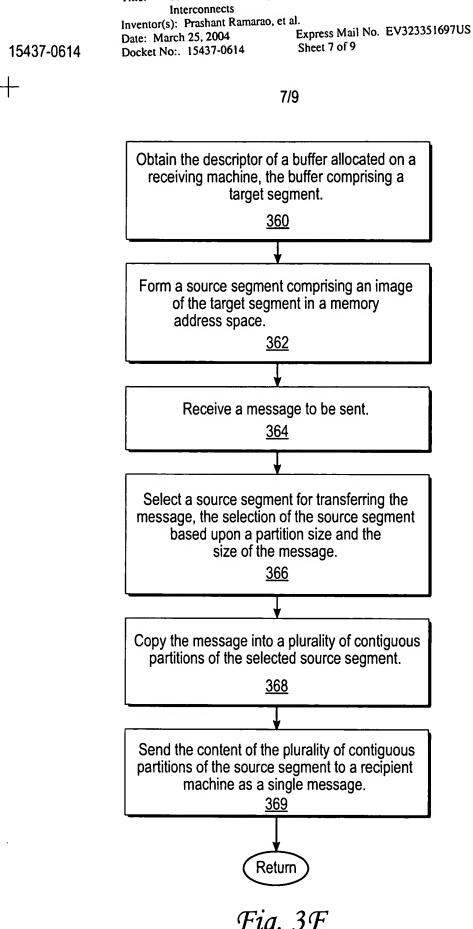


Fig. 3C

Transfer Of Arbitrary Size Messages Over Memory Based Title: Interconnects Inventor(s): Prashant Ramarao, et al. Express Mail No. EV323351697US Date: March 25, 2004 Docket No:. 15437-0614 Sheet 6 of 9 6/9 Register each segment group in a segment group table and each segment in a segment table. <u>340</u> Maintain in an entry of a directory of entries an indicator of whether the directory entry corresponds to a first partition of a plurality of contiguous partitions storing a message and information about a next partition of the plurality of contiguous partitions if the message spans multiple partitions 342 Fig. 3D Search for a paired source segment and target segment capable of transferring the message from the sending machine to the receiving machine. 350 Determine from an entry in the directory corresponding to the paired source segment and target segment whether the paired source segment and target segment comprise sufficient contiguous partitions to transfer the message. 352

15437-0614

Fig. 3E



Transfer Of Arbitrary Size Messages Over Memory Based

Title:

Fig. 3F

Transfer Of Arbitrary Size Messages Over Memory Based Title:

Interconnects

Inventor(s): Prashant Ramarao, et al.

Express Mail No. EV323351697US Date: March 25, 2004

Docket No: 15437-0614

Sheet 8 of 9

15437-0614

8/9

Allocate a buffer comprising a target segment in a memory.

<u>370</u>

Register a descriptor of the buffer for the target segment with a remote shared memory manager.

372

Receive a single message comprising content of a plurality of contiguous partitions comprising a source segment image of the target segment in a memory address space of a sending machine, the source segment selected from among a plurality of source segments based upon a partition size and a size of the message.

<u>374</u>

Title: Transfer Of Arbitrary Size Messages Over Memory Based

Interconnects

Express Mail No. EV323351697US Sheet 9 of 9

Inventor(s): Prashant Ramarao, et al.
Date: March 25, 2004 E
Docket No:. 15437-0614 S

15437-0614

+ 9/9

